Abstract of the Disclosure:

An IGBT with monolithic integrated antiparallel diode has one or more emitter short regions forming the diode cathode in the region of the high-voltage edge. The p-type emitter regions of the IGBT have no emitter shorts. The counterelectrode of the diode exclusively comprises p-type semiconductor wells on the front side of the device. Particularly in applications, such as lamp ballast, in which the diode of the IGBT is firstly forward-biased, hard commutation is not effected and the current reversal takes place relatively slowly. The emitter short regions may be strips or points below the high-voltage edge. The horizontal bulk resistance is increased and the snapback effect is reduced without reducing the robustness in the edge region. In a second embodiment, the IGBT is produced using thin wafer technology and the thickness of the substrate defining the inner zone is less than 200 µm. The thickness of the emitter region or of the emitter regions and short region(s) is less than 1 µm. A transparent emitter is preferable in this case.

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